

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims:

Listing of Claims:

1. (Currently amended) An integrated electro-optic circuit comprising:
a semiconductor substrate composed of a material suitable for use as a detector of a predetermined signal wavelength;
an electronic circuit layer positioned on the semiconductor substrate;
a buffer layer positioned on the electronic circuit layer;
a waveguide layer, including a waveguide, positioned on the buffer layer, the waveguide layer being formed of phosphate glass doped with an amplifying material; and
a cladding layer positioned on the waveguide layer,
wherein the cladding layer is doped with an amplifying material.
wherein an index of refraction of the waveguide layer is greater than an index of refraction of the buffer layer and greater than an index of refraction of the cladding layer.
2. (Original) The electro-optic circuit of claim 1, wherein the electronic circuit layer includes an electro-optic element for receiving a signal from the waveguide layer.
3. (Original) The electro-optic circuit of claim 2, wherein the electro-optic element is an optical sensor for detecting a coupling signal comprising a portion of a photonic communication signal propagating in the waveguide layer.
4. (Original) The electro-optic circuit of claim 3, further comprising a light signal tap for directing the coupling signal towards the sensor.
5. (Original) The electro-optic circuit of claim 4, wherein the light signal tap includes a region of the buffer layer having an increased index of refraction with respect to the index of refraction of the buffer layer, such that a predetermined portion of the photonic communication signal forms the coupling signal.
- 6-8. (Canceled)

9. (Original) The electro-optic circuit of claim 3, wherein the amplifying material comprises erbium.

10. (Original) The electro-optic circuit of claim 9, wherein the amplifying material further comprises ytterbium.

11. (Original) The electro-optic circuit of claim 1, wherein the material comprises gallium aluminum arsenide and the predetermined signal wavelength is between about 1100 nm and about 1600 nm.

12. (Original) The electro-optic circuit of claim 1, wherein the material comprises silicon and the predetermined signal wavelength is less than about 1100 nm.

13. (Original) The electro-optic circuit of claim 1, wherein the material comprises germanium and the predetermined signal wavelength is greater than about 2000 nm.

14-22. (Canceled)

23. (Previously presented) The electro-optic circuit of claim 1, further comprising: a signal pump source for propagating signals.

24. (Canceled)

25. (Previously presented) The electro-optic circuit of claim 4, wherein the light signal tap is provided in a region of the buffer layer.

26. (Previously presented) The electro-optic circuit of claim 4, wherein the light signal tap directs the coupling signal through the buffer layer.